

REMARKS

Favorable reconsideration of this application is respectfully requested in light of the following discussion.

After entry of the foregoing amendment, Claims 11-13, 15-17, and 19-21 are pending in the present application. Claims 19-21 are added without introduction of new matter; and Claims 1-10, 14, and 18 are canceled without prejudice or disclaimer.

In the outstanding Office Action, Claims 1 and 11-18 were rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 6,487,392 to Sonetaka in view of U.S. Patent No. 5,493,436 to Karasawa et al. (hereinafter "Karasawa"). As Claims 1, 14, and 18 are canceled, the rejection of those claims is moot. Applicants now address the rejection with respect to new independent Claims 19-21.

New Claim 19 is directed to a central control station which controls base stations connected thereto and is connected to an upper-level station. The central control station includes:

a demultiplexing unit which demultiplexes a signal supplied from the upper-level station to generate a plurality of demultiplexed signals for transmission to the base stations;

signal conversion units which are coupled to said demultiplexing unit and convert the respective demultiplexed signals into converted signals having a common transmission format;

transceiver units including at least one radio transceiver unit linked to a corresponding one of the base stations via a radio link and at least one optical transceiver unit linked to a corresponding one of the base stations via an optical fiber link; and

a distribution unit which is provided between said signal conversion units and said transceiver units to provide changeable interconnections between said signal conversion units and said transceiver units for the converted signals having the common transmission format, said common transmission format enabling compatibility between radio links and optical fiber links with respect to the changeable interconnections.

New Claim 20 recites similar features; but, in lieu of the signal conversion units, recites signal conversion means, consistent with 35 U.S.C. 112, paragraph 6. New Claim 21 also recites similar features, but is presented in method claim format. Claims 11-13 and 15-17 depend from independent Claims 19 and 20, respectively.¹

By way of background, Figure 10 illustrates conventional related art. As shown, a central station 30 uses radio 20 and optical communication links 22, 23 to establish communication links with radio base stations 31, 32, 34. In the case of radio communication, the central control station 30 supplies signals having a proper signal format for radio transmission (e.g., base-band signals processed via modems 40_{1-N} and frequency converters 41_{1-N}). In the case of optical communication, the central control station 30 supplies signals having a proper signal format for optical transmission (e.g., base-band signals processed via signal converters 45₁₋₂ and optical transceivers 46₁₋₂). Because of the different processing of the signals for radio and optical transmission, modems and frequency converters must be provided for each radio communication link; and signal converters and optical transceivers must be provided for each optical communication link. Consequently, the shared use of equipment that processes the base-band signals is difficult; and the accommodation of the communication lines is inefficient.²

In a non-limiting example, Figure 3 illustrates an embodiment of the claimed invention. In that embodiment, the distributed signals is performed with the signals being in the radio frequency range. Regardless of whether the signals are ultimately transmitted via radio or optical communication links, the signals when distributed to transmission units retain their spectral occupancy, which enables a match of signal transmission formats for radio and optical communications. Consequently, in response to certain system status conditions, such

¹ For support of Claims 19 and 20, see Applicants' Figure 2 and 3; see also their corresponding description.

² Specification, page 2, line 7 – page 4, line 30.

as traffic congestion, the base stations can be freely switched regardless of whether the connections to those stations are provided via radio or optical communication links.

Claims 19-21 clarify that the claimed common transmission format enables compatibility between the radio and optical communication links with respect to the distribution unit providing changeable interconnections between the signal conversion units and transceiver units. Thus, in response to the change in communication status (e.g., an increase in traffic congestion on either radio links or optical links), communications with base stations can be freely switched regardless of whether the connections to those base stations are radio or optical communication links.

Applicants respectfully submit that Claims 19-21 therefore distinguish over Sonetaka in view of Karasawa in at least two respects. First, the claimed distribution unit which provides changeable interconnections structurally distinguishes over any combination of Sonetaka and Karasawa since these references do not teach or suggest a distribution unit able to provide the radio/optical link format compatibility as claimed. Second, the claimed common transmission format enables compatibility between radio and optical communication links with respect to the changeable interconnections to base stations, and this common transmission format is different from the mere conversion of an electrical signal into an optical signal and back into an electrical signal (which, according to the Office Action, is disclosed by Karasawa).⁴ Moreover, an electrical-to-optical conversion (and vice versa) relates to a single link, while the claimed common transmission format enables switchable connection to different types of links (optical or RF).

Accordingly, for the reasons stated above, Applicants respectfully request that the rejection under 35 U.S.C. 103(a) based on Sonetaka in view of Karasawa be withdrawn.

⁴ Office Action, 10/4/2004, page 5.

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Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

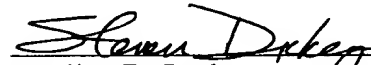
Respectfully submitted,

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